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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/628,019

07/25/2003

Daniel Frederic Sievenpiper

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GATES & COOPER LLP  
HOWARD HUGHES CENTER  
6701 CENTER DRIVE WEST, SUITE 1050  
LOS ANGELES, CA 90045

EXAMINER

CHEN, SHIH CHAO

ART UNIT

PAPER NUMBER

2821

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/628,019

Applicant(s)

SIEVENPIPER ET AL.

Examiner

Shih-Chao Chen

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/25/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities: on page 4, lines 8-9, "a two-dimensionally periodic periodic structure" should be changed to --a two-dimensionally periodic structure--.

Appropriate correction is required.

### ***Claim Objections***

2. Claim 6 is objected to because of the following informalities: on lines 2-3, "the metallic ground plane" should be changed to --the ground plane--. Appropriate correction is required.

3. Claim 8 is objected to because of the following informalities: on line 1, "The antenna system of claim 5" should be changed to --The antenna system of claim 7--. Appropriate correction is required.

4. Claim 9 is objected to because of the following informalities: on line 3, "the high-impedance buffer" should be changed to --the high-impedance buffer surface--. Appropriate correction is required.

5. Claim 14 is objected to because of the following informalities: on line 2, "a ground plane" should be changed to --the ground plane--. Appropriate correction is required.

6. Claim 16 is objected to because of the following informalities: on line 2, "a means for electrically connecting the capacitive element" should be changed to --the

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means for electrically connecting the capacitive element--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 9 recites the limitation "the high-impedance buffer" in line 4. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 10 recites the limitation "the elements" in 2. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 19 recites the limitation "the high-impedance buffer" in line 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-6, 9-16 and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanamaluru (U.S. Patent No. 6,529,166).

Regarding claim 1, Kanamaluru teaches in figures 1-4 a circularly polarized antenna system, comprising: a circularly-polarized antenna [100] (See col. 2, lines 55-

58); a high-impedance buffer surface [212], surrounding the circularly polarized antenna, and disposed between the circularly polarized antenna [100] and a ground plane [206]; and wherein a width of the high-impedance buffer surface [212] between the circularly polarized antenna and the ground plane is selected to achieve an H-plane radiation pattern substantially identical to an E-plane radiation pattern over a desired scan angle.

Regarding claim 2, Kanamaluru teaches in figures 1-4 the antenna system of claim 1, wherein the ground plane [206] is a metallic ground plane.

Regarding claim 3, Kanamaluru teaches in figures 1-4 the antenna system of claim 1, wherein the width  $x$  of the high-impedance buffer surface [212] is in the order of several wavelengths of the energy emitted by the circularly polarized antenna [210].

Regarding claim 4, Kanamaluru teaches in figures 1-4 the antenna system of claim 1, wherein the high impedance buffer surface [212] comprises a substrate [208] having plurality of capacitive elements (See col. 3, lines 60-67 & col. 4, lines 1-3).

Regarding claim 5, Kanamaluru teaches in figures 1-4 the antenna system of claim 4, wherein the capacitive elements are edge coupled (See col. 3, lines 60-67 & col. 4, lines 1-3).

Regarding claim 6, Kanamaluru teaches in figures 1-4 the antenna system of claim 5, wherein the capacitive elements are coupled to a conductive via electrically connecting the capacitive element to the ground plane [206].

Regarding claim 9, Kanamaluru teaches in figures 1-4 the antenna system of claim 1, wherein: the circularly polarized antenna [100] comprises a phased array having

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a plurality of array elements [210]; and each of the array elements are separated by the high-impedance buffer surface [212].

Regarding claim 10, Kanamaluru teaches in figures 1-4 the antenna system of claim 2, wherein the width of the high-impedance buffer surface [212] separating the elements [210] is approximately  $1/8$  wavelength of the energy emitted by the circularly polarized antenna [100].

Regarding claim 11, Kanamaluru teaches in figures 1-4 a circularly polarized antenna system, comprising: a circularly-polarized antenna [100]; means [212] for electrically isolating the circularly polarized antenna from a ground plane [206]; wherein a width of the means [212] for electric-ally isolating the circularly polarized antenna from the ground plane is selected to achieve an .H plane radiation pattern substantially identical to an E-plane radiation pattern over a desired scan angle.

Regarding claim 12, Kanamaluru teaches in figures 1-4 the antenna system of claim 11, wherein the ground plane [206] is a metallic ground plane.

Regarding claim 13, Kanamaluru teaches in figures 1-4 the antenna system of claim 11, wherein the width of the means [212] for electrically isolating the circularly polarized antenna from the ground plane is in the order of several wavelengths of the energy emitted by the circularly polarized antenna.

Regarding claim 14, Kanamaluru teaches in figures 1-4 the antenna system of claim 11, wherein the means [212] for electrically isolating the circularly polarized antenna from the ground plane comprises a plurality of capacitive elements (See col. 3, lines 60-67 & col. 4, lines 1-3).

Regarding claim 15, Kanamaluru teaches in figures 1-4 the antenna system of claim 14, wherein the capacitive elements are edge coupled.

Regarding claim 16, Kanamaluru teaches in figures 1-4 the antenna system of claim 15, wherein the capacitive elements are coupled to the means [212] for electrically connecting the capacitive element to the metallic ground plane [206].

Regarding claim 19, Kanamaluru teaches in figures 1-4 the antenna system of claim 11, wherein: the circularly polarized antenna [100] comprises a phased array having a plurality of array elements [210]; and each of the array elements are separated by the high-impedance buffer surface [212].

Regarding claim 20, Kanamaluru teaches in figures 1-4 the antenna system of claim 19, wherein a width of the high-impedance buffer surface [212] separating the elements [210] is approximately  $1/8$  wavelength of the energy emitted by the circularly polarized antenna [100].

#### ***Allowable Subject Matter***

13. Claims 7-8 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Shih-Chao Chen*  
Shih-Chao Chen  
Primary Examiner  
Art Unit 2821

SXC  
December 13, 2004